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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,798	01/18/2002	Dirk Schubert	NI 140	9386

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EXAMINER	
LE, JOHN H	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 06/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/056,798	SCHUBERT, DIRK	
	Examiner	Art Unit	
	John H Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 6* is/are rejected.

7)☒ Claim(s) *4 and 7-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign-language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim 9 is objected to because of the following informalities:

Claim 9, line 1, "an apparatus according claim 1" should change to -- an apparatus according claim 5--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Cote et al. (USP 6,485,703).

Regarding claim 1, Cote et al. teach a method for determining the molecular weight of polymers comprising the steps of: preparing a thin layer of the polymer whose molecular weight is to be determined (Col.46, lines 55-66), determining the thickness of said layer by an ellipsometric method and calculating, with the thickness determined by said ellipsometric method (Col.61, line 46-Col.62, line 19), the molecular weight of the polymer material from a layer thickness molecular weight correlation (Col.6, lines 9-40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (USP 6,485,703) in view of Chung (USP 6,395,607).

Regarding claim 2, Cote et al. teach the thin polymer layer is prepared from a polymer solution on a substrate by a spin-coating process (Col.26, lines 19-35).

Cote et al. fail to teach the substrate is rotated.

Chung teaches polymer layer is prepared from a polymer solution on a substrate by a spin-coating process, wherein the substrate is rotated (Col.5, line 48-Col.6, line 3).

Regarding claim 3, Chung teaches the layer is removed from said substrate (Col. 1, line 65-Col.2, line 35) by the application of a solvent (Col.5, lines 33-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform the substrate is rotated as taught by Chung in a compositions and methods for analyte detection of Cote et al. for the purpose of providing a process for forming a microelectronic device (Chung, Col.1, lines 63-64).

6. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (USP 6,485,703) in view of Yu (USP 5,660,961).

Regarding claim 5, Cote et al. teach an apparatus for determining the molecular weight of polymers (Col.46, lines 55-66), comprising an ellipsometer disposed above a substrate for determining the thickness of a thin polymer layer disposed on said substrate (Col.61, line 46-Col.62, line 19).

Cote et al. fail to teach a support structure supporting a substrate an arrangement for providing on said substrate a thin layer of a solution of the polymer whose molecular weight is to be determined.

Yu teaches a support structure 10 supporting a substrate, an arrangement for providing on said substrate a thin layer (Col.8, lines 27-54) of a solution of the polymer whose molecular weight is to be determined (Col.18, lines 5-49).

Regarding claim 6, Yu teaches the optical parts (lenses) 18 and 20 (Fig.2)(Col.9, lines 19-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a support structure 10 as taught by Yu in a compositions and methods for analyte detection of Cote et al. for the purpose of providing a improved layered electrophotographic image members (Yu, Col.6, lines 35-38).

Allowable Subject Matter

7. Claims 4, 7-9, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, none of the prior art of record teaches or suggests the combination of a method for determining the molecular weight of polymers, wherein the method which comprising step of preparing a thin layer of the polymer whose molecular weight is to be determined, wherein said thin polymer layer is prepared from a polymer

solution on a substrate by a spin-coating process, wherein the substrate is rotated, wherein, after determining the thickness of the polymer layer, the layer is removed from said substrate by the application of a solvent, wherein, after removal of the polymer layer from the substrate by said solvent, said substrate is continued to be rotated for a predetermined time. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 10, none of the prior art of record teaches or suggests the combination of a method for determining the molecular weight of polymers, wherein the method which comprising step of preparing a thin layer of the polymer whose molecular weight is to be determined, wherein said thin polymer layer is prepared from a polymer solution on a substrate by a spin-coating process, wherein the substrate is rotated, wherein, after determining the thickness of the polymer layer, the layer is removed from said substrate by the application of a solvent, wherein said solvent is applied for 5 - 10 seconds. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 7, none of the prior art of record teaches or suggests the combination of an apparatus for determining the molecular weight of polymers, wherein the apparatus comprising a support structure supporting a substrate, an arrangement for providing on said substrate a thin layer of a solution of the polymer whose molecular weight is to be determined, and an ellipsometer disposed above said substrate for

determining the thickness of said thin polymer layer disposed on said substrate, wherein said arrangement for providing said thin polymer layer includes means for supplying said polymer to said substrate and said substrate is supported by a support structure, which is rotatable about a vertical axis and which is rotated to subject the polymer solution supplied to said substrate to centrifugal forces for spreading said polymer solution on said substrate to form said thin polymer layer. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 9, none of the prior art of record teaches or suggests the combination of an apparatus for determining the molecular weight of polymers, wherein the apparatus comprising a support structure supporting a substrate, an arrangement for providing on said substrate a thin layer of a solution of the polymer whose molecular weight is to be determined, and an ellipsometer disposed above said substrate for determining the thickness of said thin polymer layer disposed on said substrate, wherein, for determining the molecular weight of the polymer, the relationship used is

Layer thickness $d \sim [\eta]^{1/3}$

and $[\eta] = KM^a$ (Staudinger equation)

wherein, $[\eta]$ = intrinsic viscosity number

K = constant [volume/mass]

A = constant, and

M = molecular weight.

It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Le whose telephone number is (703) 605-4361. The examiner can normally be reached on Monday to Friday from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. John Barlow, can be reached at (703) 308-3126. The facsimile number for Technology Center 2800 is (703) 308-5841.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of the Technology Center whose telephone number is (703) 308-0956.

John Le

Patent Examiner-Group 2863

June 18, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800